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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/914,305	08/27/2001	Tiziano Dall'Occo	US 18024	3720

7590

10/09/2003

William R Reid
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EXAMINER

LEE, RIP A

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 10/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/914,305

Applicant(s)

DALL'OCCO ET AL.

Examiner

Rip A. Lee

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7,9-15,20,21,23 and 25-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20,21,23 and 27 is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-15, 25 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This office action follows a response filed on August 4, 2003. Applicants have amended claims 1, 5, 25, and 26. Specifically, the claims have been limited to compounds in which at least one of substituents R⁷ and R⁸ is not hydrogen.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-7, 9-12, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/22486 to Ewen *et al.*

Ewen *et al.* discloses a process for polymerization of an addition polymerizable monomer (claim 13) for the production of polyethylene, propylene, or copolymers thereof (claim 19). Catalysts derived from isopropylidene (3-alkylcyclopentadienyl)(7-cyclopentadithiophene) zirconium dichloride and MAO are adequately disclosed (page 15-16). However, the reference does not provide examples in which the cyclopentadithiophene ligand is asymmetrically substituted such that at least one of R⁷ and R⁸ is not hydrogen (as presently claimed). However, According to claims 9-11 of Ewen *et al.*, the metallocenes of the invention possess bilateral symmetry, or they are asymmetric, thereby necessitating the conditions of the present claims that “at least one of substituents R⁷ and R⁸ is not hydrogen.” As further support for this notion, structures [g] and [l] on page 36 also include substituents R_n and R_m such that C₂ or C_s symmetric metallocenes may be prepared. Furthermore, the text recites that substituents R may be different from each other (page 38). Since Ewen *et al.* discloses pre-catalysts in which the Cp ligand is asymmetric, one having ordinary skill in the art would find it obvious to arrive at the notion of pre-catalysts in which the cyclopentadithiophene ligand is asymmetric, especially when it is stated that its substituents R may be different from each other. In view of the collective information presented in the prior art, and in the absence of any showing of criticality of the newly claimed structural feature, it is maintained that one having ordinary skill in the art would have found it obvious to arrive at an asymmetrically substituted metallocene catalyst as presently claimed because such an embodiment is adequately disclosed in Ewen *et al.*

Finally, Ewen *et al.* teaches use of activators such as alcohol-B(C₆F₅)₃ complexes and triphenylcarbenium boronates (page 72), and therefore, it would have been obvious to one having ordinary skill in the art to use these cocatalysts to arrive at the subject matter of the present claims.

4. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO98/22486 to Ewen *et al.* in view of U.S. Patent No. 5,948,873 to Santi *et al.*

All discussions of the disclosures of the prior art of Ewen *et al.* are incorporated here by reference. The primary reference does not recite a process for the polymerization of ethylene and cyclic olefin monomers. The use of catalysts derived from metallocene/MAO for making ethylene/ α -olefin copolymers, ethylene/cyclic olefin copolymers, and ethylene/ α -olefin/cyclic olefin copolymers is well established in the art. The patent by Santi *et al.* exemplifies a process for the synthesis of ethylene/propylene/diene terpolymers in which the diene is derived from 5-ethylidene-2-norbornene (col. 6, line 15 and Tests 1-16). Thus, it would have been obvious to one having ordinary skill in the art to use the catalysts of Ewen *et al.* for preparing polymers containing units derived from 5-ethylidene-2-norbornene, and one with ordinary skill in the art would have expected such a procedure to work. *In re O'Farrell*, 7 USPQ 2d 1673 (Fed. Cir. 1988).

Response to Arguments

5. Applicant's arguments with respect to claim rejections under 35 U.S.C. 102(b) as being anticipated by Ewen *et al.* have been considered but are moot in view of the new ground(s) of rejection.

n.b. The examiner has reviewed the data in Table 1 again, and these would not constitute unexpected results of the invention as presently claimed because the data compares polymerization activity of symmetric vs. asymmetric catalysts in which the Cp ligand bears the single substituent. In stark contrast, the catalyst of the present claims possesses an asymmetric cyclopentadithiophene ligand, and the polymerization behavior is expected to be different from that displayed by the exemplary catalysts.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

The prior art made of record but not relied upon is considered pertinent to the Applicant's disclosure. The following documents have been cited because they relate directly to the subject matter of the present invention.

U.S. 2003/0036612 to Nifant'ev *et al.*

U.S. 2003/0036610 to Fusco *et al.*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (703)306-0094. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (703)308-2450. The fax phone number for the organization where this application or proceeding is assigned is (703)746-7064. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

ral

September 24, 2003



DAVID W. WU
SUPERVISORY PATENT EXAMINER
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